CLAIMS

WHAT IS CLAIMED IS:

1. A method comprising:

stopping execution of a program at a breakpoint based on a previous value of a variable.

2. The method of claim 1, further comprising:

saving a plurality of values of the variable after a respective plurality of encounters of the breakpoint by the program.

3. The method of claim 2, wherein the stopping further comprises:

selecting for the previous value one of the plurality of values based on a condition associated with the breakpoint.

4. The method of claim 1, further comprising:

selecting the variable based on a condition associated with the breakpoint.

5. The method of claim 2, wherein the saving further comprises:

pushing the plurality of values onto a stack associated with the breakpoint.

6. An apparatus comprising:

means for saving a plurality of values of a variable after a respective plurality of encounters of a breakpoint by a program that modifies the variable; and

means for stopping execution of the program at the breakpoint based on one of the plurality of values.

7. The apparatus of claim 6, further comprising:

means for selecting the one of the plurality of values based on a condition associated with the breakpoint.

8. The apparatus of claim 6, further comprising:

means for selecting the variable based on a condition associated with the breakpoint.

9. The apparatus of claim 6, further comprising:

means for determining whether to stop execution of the program at the breakpoint based on the one of the plurality of the values.

10. The apparatus of claim 6, wherein the means for saving further comprises:

means for pushing the plurality of values onto a stack associated with the breakpoint.

11. A signal-bearing medium encoded with instructions, wherein the instructions when executed comprise:

saving a plurality of values for a variable specified by a condition after a respective plurality of encounters of a breakpoint by a program that modifies the variable, and

determining whether to stop execution of the program at the breakpoint based on one of the plurality of the values.

12. The signal-bearing medium of claim 11, further comprising:

if the determining is true, stopping execution of the program at the breakpoint.

13. The signal-bearing medium of claim 11, further comprising:

selecting the one of the plurality of values based on the condition.

14. The signal-bearing medium of claim 11, wherein the saving further comprises:

pushing the plurality of values onto a stack associated with the breakpoint and the variable.

15. The signal-bearing medium of claim 14, wherein the determining further comprises:

finding the one of the plurality of values in the stack; and

processing the condition using the one of the plurality of values.

16. An electronic device comprising:

a processor; and

a storage device encoded with instructions, wherein the instructions when executed on the processor comprise:

saving a plurality of values for a variable specified by a condition after a respective plurality of encounters of a breakpoint by a program that modifies the variable,

determining whether to stop execution of the program at the breakpoint based on one of the plurality of the values, and

if the determining is true, stopping execution of the program at the breakpoint.

17. The electronic device of claim 16, wherein the instructions further comprise:

selecting the one of the plurality of values based on the condition.

18. The electronic device of claim 16, wherein the saving further comprises:

pushing the plurality of values onto a stack associated with the breakpoint and the variable.

19. The electronic device of claim 18, wherein the determining further comprises:

finding the one of the plurality of values in the stack; and

evaluating the condition using the one of the plurality of values.

20. The electronic device of claim 16, wherein the instructions further comprise:

if the determining is false, allowing the program to continue to execute.

21. A method comprising:

applying an attribute to all of a plurality of breakpoints in a breakpoint group.

22. The method of claim 21, wherein the attribute is a breakpoint style.

23. The method of claim 21, wherein the attribute is thread specificity of the plurality of breakpoints.

24. The method of claim 21, wherein the attribute is a condition.

25. The method of claim 21, wherein the attribute impacts whether a program halts upon encountering each of the plurality of breakpoints or continues to execute.

26. An apparatus comprising:

means for applying an attribute to a plurality of breakpoints in a breakpoint group, wherein the attribute comprises data that impacts whether a program halts upon encountering the plurality of breakpoints or continues to execute.

27. The apparatus of claim 26, wherein the attribute is a breakpoint style.

28. The apparatus of claim 26, wherein the attribute is thread specificity of the plurality of breakpoints.

29. The apparatus of claim 26, wherein the attribute is a condition.

30. The apparatus of claim 29, further comprising:

means for joining the condition with each of a plurality of old conditions associated with the respective plurality of breakpoints if the plurality of old conditions exist.

31. A signal-bearing medium encoded with instructions, wherein the instructions when executed comprise:

determining whether a plurality of old conditions exist for a plurality of respective breakpoints in a breakpoint group; and

applying a new condition to each of the plurality of breakpoints if the each of the plurality of old conditions exists.

32. The signal-bearing medium of claim 31, wherein the applying further comprises:

forming a conjunction of the new condition and each of the plurality of old conditions if the each of the plurality of old conditions exists and a join option is selected.

33. The signal-bearing medium of claim 31, wherein the applying further comprises:

replacing each of the plurality of old conditions with the new condition if the each of the plurality of old conditions exists and a replace option is selected.

34. An electronic device comprising:

a processor; and

a storage device encoded with instructions, wherein the instructions when executed on the processor comprise:

applying an attribute to all of a plurality of breakpoints in a breakpoint group, and

determining whether to halt a program that encounters the plurality of breakpoints based on the attribute.

35. The electronic device of claim 34, wherein the attribute is a breakpoint style.

36. The electronic device of claim 34, wherein the attribute is thread specificity.

37. The electronic device of claim 34, wherein the attribute is a condition.

38. A method comprising:

detecting that a program encountered a breakpoint; and

determining whether to allow the program to continue executing based on a thread.

39. The method of claim 38, further comprising:

determining the thread, wherein the thread is associated with the breakpoint.

40. The method of claim 38, further comprising:

if the determining is true, allowing the program to continue executing.

41. The method of claim 38, further comprising:

if the determining is false, halting the program.

42. The method of claim 38, wherein the determining further comprises:

determining whether to allow the program to continue executing based on the thread and a user interface selection.

43. The method of claim 38, further comprising:

presenting a user interface that allows specification of exclusion and inclusion of the breakpoint on a thread basis.

44. A apparatus comprising:

means for detecting that a program encountered a breakpoint;

means for determining a thread associated with the breakpoint; and

means for deciding whether to allow the program to continue executing based on the thread.

45. The apparatus of claim 44, further comprising:

means for allowing the program to continue executing if the deciding is true.

46. The apparatus of claim 44, further comprising:

means for halting the program if the deciding is false.

47. The apparatus of claim 44, wherein the means for deciding further comprises:

means for deciding whether to allow the program to continue executing based on the thread and a user interface selection.

48. The apparatus of claim 44, further comprising:

means for presenting a user interface that allows specification of exclusion and inclusion of the breakpoint on a thread basis.

49. A signal-bearing medium encoded with instructions, wherein the instructions when executed comprise:

detecting that a program encountered a breakpoint;

determining a thread associated with the breakpoint;

deciding whether to allow the program to continue executing based on the thread; and

allowing the program to continue executing if the deciding is true.

50. The signal-bearing medium of claim 49, further comprising:

halting the program if the deciding is false.

51. The signal-bearing medium of claim 49, wherein the deciding further comprises:

deciding whether to allow the program to continue executing based on the thread and a user interface selection.

52. The signal-bearing medium of claim 49, further comprising:

presenting a user interface that allows specification of exclusion and inclusion of the breakpoint on a thread basis.

53. An electronic device comprising:

a processor; and

a storage device encoded with instructions, wherein the instructions when executed on the processor comprise:

detecting that a program encountered a breakpoint,

determining a thread associated with the breakpoint,

deciding whether to allow the program to continue executing based on the thread,

allowing the program to continue executing if the deciding is true, and

halting the program if the deciding is false.

54. The electronic device of claim 53, wherein the deciding further comprises:

deciding whether to allow the program to continue executing based on the thread and a user interface selection.

55. The electronic device of claim 53, wherein the instructions further comprise:

presenting a user interface that allows specification of exclusion and inclusion of the breakpoint on a thread basis.